

**ATTACHMENT 1**

**License Amendment Request**

**Callaway Unit No. 1  
Renewed Facility Operating License NPF-30  
NRC Docket No. 50-483**

**Revise Technical Specifications to Adopt Risk-Informed  
Completion Times TSTF-505, Revision 2, "Provide Risk-Informed  
Extended Completion Times – RITSTF Initiative 4b"**

**Description and Assessment**

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### DESCRIPTION AND ASSESSMENT

#### 1.0 DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Union Electric Company (dba Ameren Missouri) requests an amendment to Renewed Facility Operating License No. NPF-30 for Callaway Plant, Unit No. 1 (Callaway).

The requested amendment would revise applicable Technical Specifications to implement risk informed Completion Times and the RICT Program in accordance with the guidance of TSTF-505, Revision 2. In support of the adoption of TSTF-505, applicable portions of TSTF-439, Revision 2, which involves the elimination of second Completion Times will also be adopted. In addition, the requested amendment would remove obsolete one-time Completion Times from applicable Technical Specifications.

The proposed amendment would modify the Technical Specifications (TS) requirements related to Completion Times (CTs) for Required Actions to provide the option to calculate a longer, risk-informed CT. A new program, the Risk-informed Completion Time (RICT) Program, is added to TS Section 5.0, "Administrative Controls." The proposed amendment is consistent with TSTF- 505, Revision 2, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b."

The methodology for using the RICT Program is described in NEI 06-09-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," Revision 0, which was approved by the NRC on May 17, 2007 (ADAMS Accession No. ML12286A322). Adherence to NEI 06-09-A is required by the RICT Program.

The proposed amendment would also modify the TS requirements to adopt applicable portions of TSTF-439, Revision 2. TSTF-439 deletes the second Completion Times from specific Required Actions, revises the Improved Standard Technical Specification Example 1.3-3 to remove the second Completion Times, and revises the discussion in that Example to state that alternating between Conditions in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO is inconsistent with the basis of the Completion Times and is inappropriate. Administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO will be implemented.

As discussed in the Background section of Attachment 6, the adoption of TSTF-439, Revision 2, is necessary in order to adopt TSTF-505, Revision 2.

Attachment 1, Section 2, provides the assessment and justification associated with adoption of TSTF-505, Revision 2, and Attachment 6 provides the assessment and justification associated with adoption of TSTF-439, Revision 2. Separate Attachments were provided to clearly differentiate evaluation of the changes proposed per TSTF-505 from evaluation of the changes proposed per TSTF-439. Presentation in this manner preserves compliance with the format of the model application amendment for TSTF-505. To assist the NRC Staff in publishing the public notice for the proposed change, however, the No Significant Hazards Consideration Determination and the Environmental Considerations evaluations for the TSTF-505 and TSTF-439 TS changes are combined and are provided in Attachment 1, Section 3, Regulatory Analysis, and Section 4, Environmental Consideration.

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Attachments 2 through 5 provide a mark-up of the proposed Technical Specifications, the retyped Technical Specifications, a mark-up of the proposed TS Bases (provided for information only), and a cross-reference between the TSTF-505 changes and Callaway Technical Specifications, respectively, in support of this amendment request. The cross-reference document in Attachment 5 also identifies the changes associated with the adoption of TSTF-439.

For three locations within the Technical Specifications, administrative changes are proposed to delete one-time Completion Time allowances that are remnants of previous licensing actions. (These one-time CT allowances were requested and approved to address past plant activities/events on a one-time basis and are thus no longer effective. This amendment request provides an opportunity to remove these obsolete provisions.) The markups for these changes are included in the markups and provided in Attachment 5. Because these changes are administrative in nature, no additional discussion of these deletions is provided. The affected Completion Times are contained in TS Limiting Condition for Operation (LCO) 3.7.5, Required Action C.1; TS LCO 3.7.8, Required Action A.1; and TS LCO 3.8.1, Required Action B.4.

## 2.0 ASSESSMENT

This section provides the technical assessment and evaluation for adoption of TSTF-505 Revision 2. The assessment and evaluation for adoption of TSTF-439 is presented in Attachment 6.

### 2.1 Applicability of Published Safety Evaluation

Callaway has reviewed TSTF-505, Revision 2, including the model application contained therein, dated November 21, 2018 (ADAMS Accession No. ML18267A259). The scope of this review included supporting information for TSTF-505 and the safety evaluation for NEI 06-09-A. As described further below, Ameren Missouri has concluded that the TSTF-505 technical basis is applicable to Callaway and supports incorporation of this amendment in the Callaway TS.

### 2.2 Verifications and Regulatory Commitments

In accordance with Section 4.0, "Limitations and Conditions," of the safety evaluation for NEI 06-09-A, the following is provided:

1. Enclosure 1 identifies each of the TS Required Actions to which the RICT Program will apply, with a comparison of the TS functions to the functions modeled in the probabilistic risk assessment (PRA) of the structures, systems and components (SSCs) subject to those Actions.
2. Enclosure 2 provides a discussion of the results of peer reviews and self-assessments conducted for the plant-specific PRA models which support the RICT Program, as required by Regulatory Guide (RG) 1.200 Revision 2, Section 4.2.
3. Enclosure 3 is not applicable since each PRA model used for the RICT Program is addressed using a standard endorsed by the Nuclear Regulatory Commission.

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4. Enclosure 4 provides appropriate justification for excluding sources of risk not addressed by the PRA models.
5. Enclosure 5 provides the plant-specific baseline core damage frequency (CDF) and large early release frequency (LERF) to confirm that the potential risk increases allowed under the RICT Program are acceptable.
6. Enclosure 6 is not applicable since the RICT Program is not being applied to shutdown modes.
7. Enclosure 7 provides a discussion of the Callaway Plant's programs and procedures that assure the PRA models that support the RICT Program are maintained consistent with the as-built, as-operated plant.
8. Enclosure 8 provides a description of how the baseline PRA model, which calculates average annual risk, is evaluated and modified for use in the Real Time Risk tool to assess real time configuration risk, and describes the scope of, and quality controls applied to, the Real Time Risk tool.
9. Enclosure 9 provides a discussion of how the key assumptions and sources of uncertainty in the PRA models were identified, including how their impact on the RICT Program was assessed and dispositioned.
10. Enclosure 10 provides a description of the implementing programs and procedures regarding the plant staff responsibilities for the RICT Program implementation, including risk management action (RMA) implementation.
11. Enclosure 11 provides a description of the implementation and monitoring program as described in NEI 06-09-A, Section 2.3.2, Step 7.
12. Enclosure 12 provides a description of the process to identify and provide RMAs.

#### 2.3 Optional Variations

Ameren Missouri has proposed variations from the TS changes described in TSTF-505, Revision 2, or the applicable parts of the NRC's model safety evaluation dated November 21, 2018. These options are identified and explained in Enclosure 1 of this license amendment request (LAR) and were recognized as acceptable variations in TSTF-505 and the NRC's model safety evaluation.

In a few instances, the Callaway Technical Specifications use different numbering and titles than the Standard Technical Specifications (STS) on which TSTF-505 is based. These differences are administrative and do not affect the applicability of TSTF-505 to Callaway. Only TS changes consistent with the Callaway design and TS are included. Attachment 2 provides specific information.

Attachment 5 is a cross-reference that provides a comparison between the NUREG-1431, "Standard Technical Specifications Westinghouse Plants," Required Actions included in TSTF-505 Revision 2 and the Callaway TS Required Actions included in this LAR.

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Attachment 5 includes a summary description of the referenced Required Actions, which is provided for information purposes only and is not intended to be a verbatim description of the Required Actions. The cross-reference in Attachment 5 identifies the following:

1. Callaway TS Required Actions that have identical numbers to the corresponding NUREG-1431 Required Actions are not deviations from TSTF-505, except for administrative deviations (if any) such as formatting. These deviations are administrative with no impact on the NRC's model safety evaluation dated November 21, 2018.
2. Callaway TS Required Actions that have different numbering than the NUREG-1431 Required Actions are an administrative deviation from TSTF-505 with no impact on the NRC's model safety evaluation dated November 21, 2018.
3. For NUREG-1431 Required Actions that are not contained in the Callaway TS, the corresponding TSTF-505 mark-ups for the Required Actions are not applicable to Callaway. This is an administrative deviation from TSTF-505 with no impact on the NRC's model safety evaluation dated November 21, 2018.
4. There are several plant-specific LCOs and associated Actions for which Ameren Missouri is proposing to apply the RICT Program that are variations from TSTF-505 as identified in Attachment 5. Attachment 5 was created using the STS from NUREG-1431 as referenced in TSTF-505, with exceptions annotated on Attachment 5 and summarized below. Additional details are contained in Attachment 5 for each individual TS Condition and Action statement that is different the NUREG-1431 Westinghouse STS.

TS LCO 3.3.2 Required Action Q.1 – One train inoperable. The Required Action pertains to the Automatic Actuation Logic and Actuation Relays (BOP ESFAS). Two independent trains are required to be OPERABLE in MODEs 1, 2, and 3 to satisfy TS LCO 3.3.2, Table 3.3.2-1, Function 6.c. for Auxiliary Feedwater Actuation and Function 10.c. for Steam Generator Blowdown and Sample Line Isolation, in order to preserve safety function in the event of a single failure.

TS LCO 3.3.2 Required Action R.1 – One or both train(s) inoperable. The Required Action pertains to the Loss of Offsite Power (LOP) instrumentation. The LOP is detected by a voltage drop on each Engineered Safety Features (ESF) bus that is sensed and processed by the circuitry for LOP DG Start (Load Shedder and Emergency Load Sequencer (LSELS)) and fed to BOP ESFAS by relay actuation. Loss of power to either ESF bus will start the turbine-driven AFW pump, load the motor-driven AFW pumps to their respective ESF buses following emergency diesel start, and close the steam generator blowdown and sample line isolation valves. Two trains are required to be OPERABLE in MODEs 1, 2, and 3 to satisfy TS LCO 3.3.2, Table 3.3.2-1, Function 6.f. for Auxiliary Feedwater Actuation and Function 10.d. for Steam Generator Blowdown and Sample Line Isolation, in order to preserve safety function in the event of a single failure.

TS LCO 3.3.2 Required Action S.1 – One train inoperable. The Required Action pertains to the Automatic Actuation Logic and Actuation Relays (MSFIS). Each of the two

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independent logic trains (channels) consist of three programmable logic controllers (PLCs) operating in parallel and arranged in a two-out-of-three voting configuration. Both trains are required to be OPERABLE in MODEs 1, 2, and 3 to satisfy TS LCO 3.3.2, Table 3.3.2-1, Function 4.c. for Steam Line Isolation and Function 5.b. for Turbine Trip and Feedwater Isolation, in order to preserve safety function in the event of a single failure.

TS LCO 3.7.2 Required Action A.1 – One main steam isolation valve (MSIV) actuator train inoperable. The MSIV actuators (skid-mounted at the valve) consist of two separate system-medium actuation trains. In the event of a single failure that prevents one entire MSIV actuation train from performing its required function, safety function is preserved by the other OPERABLE MSIV actuation train. Therefore, two independent MSIV actuation trains are required to be OPERABLE in MODEs 1, 2, and 3 to satisfy TS LCO 3.7.4.

TS LCO 3.7.2 Required Action B.1 – Two MSIV actuator trains inoperable for different MSIVs when the inoperable actuator trains are not in the same separation group. For each MSIV, one actuator train is associated with separation group 4 (“yellow”), and one actuator train is associated with separation group 1 (“red”). A single active failure in one power train would not prevent the other power train from functioning. Additionally, the dual-redundant actuator train design ensures that with only one actuator train on each of two affected MSIVs inoperable, each MSIV is still capable of closing on demand.

TS LCO 3.7.5 Required Action B.1 – One ESW supply to turbine driven AFW pump inoperable. Although the non-seismically-qualified Condensate Storage Tank is the preferred source of low conductivity water for the AFW pumps, the safety-related and seismically-qualified water source that is required to be available to support OPERABILITY of the AFW pumps is the Essential Service Water (ESW) system. Each independent train of ESW supplies one motor-driven AFW pump, and both trains of ESW supply the turbine-driven AFW pump. One inoperable ESW supply line in the turbine-driven AFW train does not render the TDAFP inoperable, since the turbine-driven AFW train is provided with redundant ESW supply lines.

Ameren Missouri has determined that the application of a RICT for these Callaway plant-specific LCOs is consistent with TSTF-505, Revision 2, and with the NRC's model safety evaluation dated November 21, 2018. Application of a RICT for these plant-specific LCOs will be controlled under the RICT Program. The RICT Program provides the necessary administrative controls to permit extension of Completion Times and thereby delay reactor shutdown or remedial actions, if risk is assessed and managed within specified limits and programmatic requirements. The specified safety function or performance levels of TS required structures, systems or components (SSCs) are unchanged, and the remedial actions, including the requirement to shut down the reactor, are also unchanged; only the Completion Times are extended by the RICT Program.

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5. As stated in TSTF-505, Revision 2, it is necessary to adopt TSTF-439, Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO," in order to adopt TSTF-505 for those Required Actions that are affected by both travelers.

### 3.0 REGULATORY ANALYSIS

#### 3.1 No Significant Hazards Consideration Determination

Ameren Missouri has evaluated the proposed changes to the Technical Specifications (TS) using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

Callaway requests adoption of an approved change to the Standard Technical Specifications (STS) and plant-specific TS, to modify the TS requirements related to Completion Times for Required Actions to provide the option to calculate a longer, Risk-Informed Completion Time. The allowance is described in a new program in Chapter 5.0, "Administrative Controls," entitled the "Risk-Informed Completion Time Program."

As stated in TSTF-505, Revision 2, it is necessary to adopt TSTF-439, Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO," in order to adopt TSTF-505 for those Required Actions that are affected by both travelers. TSTF-439 deletes the second Completion Times from specific Required Actions, revises the Improved Standard Technical Specification Example 1.3-3 to remove the second Completion Times, and revises the discussion in that Example to state that alternating between Conditions in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO is inconsistent with the basis of the Completion Times and is inappropriate. Administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO will be implemented.

As required by 10 CFR 50.91 (a), an analysis of the issue of no significant hazards consideration is presented below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

Regarding the adoption of TSTF-439, the proposed changes eliminate certain Completion Times from the Technical Specifications. Completion Times are not an initiator to any accident previously evaluated. As a result, the probability of an accident previously evaluated is not affected. The consequences of an accident during the revised Completion Time are no different than the consequences of the same accident during the existing Completion Times. As a result, the consequences of an accident previously evaluated are not affected by this change. The proposed changes do not alter or prevent the ability of structures, systems, and components (SSCs) from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed changes do not affect the source

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term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed changes do not increase the types or amounts of radioactive effluent that may be released offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed changes are consistent with the safety analysis assumptions and resultant consequences.

Regarding the adoption of TSTF-505, the proposed changes permit the extension of Completion Times provided the associated risk is assessed and managed in accordance with the NRC approved Risk-Informed Completion Time Program. The proposed changes do not involve a significant increase in the probability of an accident previously evaluated because the changes involve no change to the plant or its modes of operation. The proposed changes do not increase the consequences of an accident because the design-basis mitigation function(s) of the affected system(s) is not changed and the consequences of an accident during the extended Completion Time are no different from those during the existing Completion Time.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

Regarding the adoption of TSTF-439, the changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The changes do not alter any assumptions made in the safety analysis.

Regarding the adoption of TSTF-505, the proposed changes do not change the design, configuration, or method of operation of the plant. The proposed changes do not involve a physical alteration of the plant (no new or different kind of equipment will be installed).

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

Response: No.

Regarding the adoption of TSTF-439, the proposed change to delete the second Completion Time does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The safety analysis acceptance criteria are not affected by this change. The proposed changes will not result in plant operation in a configuration outside of the design basis.

Regarding the adoption of TSTF-505, the proposed changes permit the extension of Completion Times provided risk is assessed and managed in accordance with the NRC approved Risk-Informed Completion Time Program. The proposed changes implement



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a risk-informed configuration management program to assure that adequate margins of safety are maintained. Application of these new specifications and the configuration management program considers cumulative effects of multiple systems or components being out of service and does so more effectively than the current Technical Specifications.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, Ameren Missouri concludes that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

#### 3.2 Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

#### 4.0 ENVIRONMENTAL CONSIDERATION

Regarding the adoption of TSTF-439, Ameren Missouri has reviewed the environmental evaluation included in the model safety evaluation published in TSTF-439-A, Revision 2, as approved by NRC Letter to the Technical Specification Task Force titled "Status of TSTF-439, 'Eliminate Second Completion Times Limiting Time From Discovery of Failure to Meet an LCO,'" dated January 11, 2006 (ADAMS Accession number ML060120272). Ameren Missouri has concluded that the findings presented in the model evaluation are applicable to Callaway.

Regarding the adoption of TSTF-505, Ameren Missouri has reviewed the environmental evaluation included in the model safety evaluation published on November 21, 2018 (ADAMS Accession No. ML18267A259) as part of the Notice of Availability. Ameren Missouri has concluded that the NRC staff findings presented in the evaluation are applicable to Callaway.

The proposed changes (per both TSTF TS travelers) would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed changes.